

REMARKS/ARGUMENTS

Favorable reconsideration of this Application in light of the following discussion is respectfully requested.

Claims 1-20 are pending in the present Application, Claim 20 having been added by the present amendment. No new matter is added.¹

By way of summary, the outstanding Official Action presents the following issues: the drawings are objected to under 37 CFR 1.83 (a); and Claims 1-19 have been rejected under 35 U.S.C. § 103 as being unpatentable over Englemeier (U.S. Pat. No. 5,423,549, hereafter Englemeier) in view of Barnhill (U.S. Pat. No. 5,112,055, hereafter Barnhill).

In response to the objection to the drawings, Figure 3 has been amended to show the transparent outer covering of the golf ball. Accordingly, the objection to the drawings has been overcome.

Applicants respectfully traverse the rejection of Claims 1-19 under 35 U.S.C. §103(a) as being unpatentable over Englemeier in view of Barnhill, because the outstanding Office Action has failed to provide a *prima facie* case of obviousness.

By way of background, golf is a game where groups of players progress through a golf course by hitting a golf ball from a tee to a hole. Golf courses are businesses which maximize revenue by scheduling many groups of golfers. However, the number of golfers that can be scheduled is limited by the pace of play. The pace of play being the average time required for a golfer to play a round of golf.

A smooth pace of play generates more rounds, which translates into more revenue for the golf course. Accordingly, the pace of play becomes a product of not just the golf course design, but the operator's pricing and corresponding maintenance budget. Therefore, pace of play extends beyond simple enjoyment of the game and is directly related to revenue. Golf

¹ Support for new Claim 20 is found in Original Claim 19 and the Specification at page 6, lines 21-23. In this regard, the Specification has there been amended to be consistent with Claim 19.

balls that emit signals facilitate their location, allowing the recovery of lost golf balls, and increasing the pace of play.

In the past, golf balls have emitted signals with sound,² nuclear radiation,³ and electromagnetic radiation.⁴ However, the conventional signaling golf balls lack timing devices and emit signals for indefinite periods of time to assist players to “hunt” for a ball, but do not sufficiently enhance the quality of efficiency of play.

Englemeier describes a golf ball with a transmitter unit 3, an energy store 4, an energy receiver 7, a control unit 13, and a constant current source 24. Englemeier discloses:

[the] control unit . . . actuates the transmitter unit, with the energy store [4] having a capacity which is dimensioned for a temporally restricted operating period of the control unit and/or the transmitter unit. . . . [T]he transmitter operation is restricted timewise since the transmitter unit can only operate as long as the residual capacity of the energy store is sufficient to operate the control unit or the constant current source. In this manner it is possible to reliably prevent the transmitter unit being able to transmit disturbing signals over a longer period of time with reducing intensity in accordance with the residual capacity of the energy store.

After the termination of the transmission operation of the transmitter unit of a golf ball, renewed operation is only then possible when the golf ball has been found and recharged. In this way it can be reliably ensured that the localization of another golf ball is not hindered in undesirable manner. . . .

[T]he transmitter unit is controlled by a control unit, connected to the energy store in such a way that the transmitter unit generates periodic transmission signals. . . .

This kind of control unit is realized . . . for pulsed operation of the transmitter unit [which] is controlled by the output signal of the differentiator stage.⁵

Englemeier reiterates, the transmitter unit 3 is “connected via a transistor switch T1 to the storage capacitor 4 in order to generate a pulsed transmission signal for the purpose of energy saving.”⁶ This pulsed transmission is generated by switching the transistor with a

² Barnhill.

³ Englemeier, column 1, lines 62-64 (citing GB-A 11 72 449).

⁴ Id., Abstract.

⁵ Id., column 2, line 4, lines 12-49.

⁶ Id., column 4, lines 60-63.

rectangular oscillation from the control unit 13. The control unit 13 is comprised of an astable flip-flop stage 14 and a differentiating stage 15.

The Englemeier golf ball functions so that, “[a]s soon as the energy store 4 [i.e., capacitor 4] is charged, the subsequent components 13 and 24 and in particular the transmitter unit 3 starts to work, i.e. transmitter signals are radiated via the antenna 25 of the transmitter unit 3.”⁷ The control unit 13 ensures periodic transmission signals,⁸ while the constant current source 24 ensures that the “ball-side transmitter unit generates locating signals with constant intensity during the transmitter operation.”⁹ And as a result, “the transmitter operation is restricted timewise since the transmitter unit can only operate as long as the residual capacity of the energy store is sufficient to operate the control unit or the constant current source.¹⁰ . . . The signal transmission of the golf ball is effective for approximately 15 minutes after charging has been completed . . .”¹¹

From the above disclosure provided by Englemeier, it is clear that the Englemeier golf ball transmits pulsed signals continuously until the Englemeier energy store is depleted, or until the energy store is recharged, *not for a predetermined time period*. If the Englemeier energy store is recharged during transmission, which is likely since it typically does not take 15 minutes for a golfer to find his ball, transmission is uninterrupted and continuous for at least another 15 minutes. Thus the transmission periods of Englemeier vary as a function of player convenience and in fact the Englemeier transmission period is indeterminate and not predetermined. Indeed, Englemeier merely discloses a golf ball having a finite energy source, and does not include any teachings of the claimed “timing device configured to control transmission of the electromagnetic signal for a predetermined time period after actuation of the switching device.” In fact, Englemeier fails to disclose shock actuated

⁷ Id., column 4, lines 51-54.

⁸ Id., column 2, lines 34-42.

⁹ Id., column 2, lines 16-19

¹⁰ Id., column 2, lines 20-27.

¹¹ Id., column 6, lines 27-30.

initiation of transmission as claimed, and fails to disclose a timing device responsive to shock actuation to control transmission of the electromagnetic signal for a predetermined time period after actuation of the switching device.”

The Official Action acknowledges that Englemeier does not disclose a switching device contained within the body that actuates due to a detected shock, but cites the Englemeier Abstract for the proposition that Englemeier discloses a timing device configured to control transmission of the signal for a predetermined time after actuation. On inspection, however, it is clear that the Englemeier Abstract states “After a certain discharge time, the transmitting unit stops transmitting the transmission signals,” and is merely referring to discharge of the energy store 4, an inherent feature of any power source. No separate timing device in addition to a power source, as claimed, is contemplated or suggested by Englemeier.

Not only does the Englemeier Abstract not disclose a separate and distinct timing device, but for the reasons above noted, Englemeier clearly does not teach transmission for a predetermined time period. On the contrary, Englemeier merely suggests that the discharge period of the energy store is limited to the capacity of the energy store. However, the transmission time is not a function of the capacity of the energy store, but instead a function of when the energy store is recharged in view of the fact that transmission according to Englemeier is continuous as long as the energy store is not depleted. Thus, it is respectfully submitted that Englemeier discloses neither the claimed structure of a distinct timing device in addition to a power source, nor the claimed functionality “to control transmission of the electromagnetic signal for a predetermined time period after actuation of the switching device.” In the absence of any such teachings, it is respectfully submitted that Englemeier clearly does not substantiate a *prima facie* case of obviousness.

Barnhill discloses, “a ball 6 which is already in spherical shape by Steps 1 or 2 and which by a subsequent Step 4 or 5 has been provided with a recess or cavity 7 into which will be inserted a sound transmitter 10.”¹² Then, Barnhill describes the “Concepts of the Novel Sound-Emitter Device.”¹³ This device, “shock-activated in nature, is provided to be silent through the practice swing, but automatically emits a sound upon the ball being struck, and it keeps sounding until the player finds it and wishes it silent for the next shot . . .”¹⁴

First, Barnhill fails to teach control of transmission of an electromagnetic signal. It thus discloses a very different class of golf ball “transmitters.” In fact, Barnhill *teaches away* from a ball which radiates electromagnetic energy because, “the internal components would have to be interiorly of the ball prior to shaping the ball.”¹⁵ And yet even further, Barnhill *teaches away* from a golf ball containing an electromagnetic signal transmitter because it “can-not be inserted after shape-forming of the ball.”¹⁶ Thus, Barnhill is abundantly clear that one of ordinary skill in the art would **not be motivated** to combine Barnhill with Englemeier, because Englemeier describes an electromagnetic signal transmitter contained a golf ball.

Furthermore, Barnhill fails to remedy the deficiencies of Englemeier. As accurately noted in the outstanding Office Action, Barnhill does not describe a golf ball with a timing device. Instead, the shock activated sounding device described by Barnhill keeps sounding until the player finds it and wishes it silent for the next shot,¹⁷ i.e., until the player manually shuts off the sound transmission. Thus, it is respectfully submitted that the combined teachings of Englemeier and Barnhill fail to disclose or obviate the claimed structure of a distinct timing device in addition to a power source, and the claimed functionality “to control transmission of the electromagnetic signal for a predetermined time period after actuation of

¹² Barnhill, column 6, lines 46 – 50.

¹³ Id., column 6, line 64 through column 10, line 68; and Figures 6 – 11.

¹⁴ Id., Abstract.

¹⁵ Id., column 2, line 67.

¹⁶ Id., column 3, line 10.

¹⁷ Id., Abstract.

Application No. 10/616,905
Reply to Office Action of June 17, 2004.

the switching device." In the absence of any such teachings, it is respectfully submitted that the combined teachings of Englemeier and Barnhill fail to substantiate a *prima facie* case of obviousness and that the outstanding rejection on the merits is traversed.

Consequently, the pending claims are believed to be patentably distinguishing over the cited prior art and in condition for allowance. An early and favorable action is respectfully requested.

Respectfully submitted,

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Application No. 10/616,905
Reply to Office Action of June 17, 2004.

IN THE DRAWINGS

The attached sheet of drawings includes changes to Fig. 3. This sheet, which includes Fig. 3, replaces the original sheet including Fig. 3.

Attachment: Replacement Sheet